

Claim Amendments

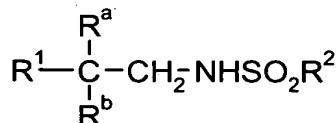
Please cancel claims 1-17.
Please add new claims 18-29.

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-17. (cancelled)

18. (new) A compound of the formula:



wherein:

R^a and R^b together represent $=\text{O}$ or $=\text{CH}_2$;

R^1 represents a naphthyl which is unsubstituted or substituted by one or two substituents selected independently from halogen; nitro; cyano; hydroxyimino; (1-10C)alkyl; (2-10C)alkenyl; (2-10C)alkynyl; (3-8C)cycloalkyl; hydroxy(3-8C)cycloalkyl; oxo(3-8C)cycloalkyl; halo(1-10C)alkyl; $(\text{CH}_2)_y\text{X}^1\text{R}^9$ in which y is 0 or an integer of from 1 to 4, X^1 represents O, S, NR^{10} , CO, COO, OCO, CONR¹¹, NR^{12}CO , $\text{NR}^{12}\text{COOCO}$ or OCONR¹³, R^9 represents hydrogen, (1-10C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, pyrrolidinyl, tetrahydrofuryl, morpholino or (3-8C)cycloalkyl and R^{10} , R^{11} , R^{12} and R^{13} each independently represents hydrogen or (1-10C)alkyl, or R^9 and R^{10} , R^{11} , R^{12} or R^{13} together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; N-(1-4C)alkylpiperazinyl; N-phenyl(1-4C)alkylpiperazinyl; thienyl; furyl; oxazolyl; isoxazolyl; pyrazolyl; imidazolyl; thiazolyl; pyridyl; pyridazinyl; pyrimidinyl; dihydrothienyl; dihydrofuryl;

dihydrothiopyranyl; dihydropyranyl; dihydrothiazolyl; (1-4C)alkoxycarbonyldihydrothiazolyl; (1-4C)alkoxycarbonyldimethyldihydrothiazolyl; tetrahydro-thienyl; tetrahydrofuryl; tetrahydrothiopyranyl; tetrahydropyranyl; indolyl; benzofuryl; benzothienyl; benzimidazolyl; and a group of formula $R^{14}-(L^a)_n-X^2-(L^b)_m$ in which X^2 represents a bond, O, NH, S, SO, SO₂, CO, CH(OH), CONH, NHCO, NHCONH, NHCOO, COCONH, OCH₂CONH or CH=CH, L^a and L^b each represent (1-4C)alkylene, one of n and m is 0 or 1 and the other is 0, and R^{14} represents a phenyl or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, nitro, cyano, hydroxyimino, (1-10C) alkyl, (2-10C) alkenyl, (2-10C) alkynyl, (3-8C)-cycloalkyl, 4-(1,1-dioxotetrahydro-1,2-thiazinyl), halo(1-10C)alkyl, cyano(2-10C)alkenyl, phenyl, and (CH₂)_zX³R¹⁵ in which z is 0 or an integer of from 1 to 4, X^3 represents O, S, NR¹⁶, CO, CH(OH), COO, OCO, CONR¹⁷, NR¹⁸CO, NHSO₂, NHSO₂NR¹⁷, NHCONH, OCONR¹⁹ or NR¹⁹COO, R¹⁵ represents hydrogen, (1-10C)alkyl, phenyl(1-4C)alkyl, (1-10C)haloalkyl, (1-4C)alkoxycarbonyl(1-4C)alkyl, (1-4C)alkylsulfonylamino(1-4C)alkyl, (N-(1-4C)alkoxycarbonyl)(1-4C)alkylsulfonylamino-(1-4C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, (3-8C)-cycloalkyl, camphoryl or an aromatic or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, (1-4C)alkyl, halo(1-4C)alkyl, di(1-4C)alkylamino and (1-4C)alkoxy and R¹⁶, R¹⁷, R¹⁸ and R¹⁹ each independently represents hydrogen or (1-10C)alkyl, or R¹⁵ and R¹⁶, R¹⁷, R¹⁸ or R¹⁹ together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; and

R² represents (1-6C)alkyl, (1-6C)fluoro-alkyl, (1-6C)chloroalkyl, (2-6C)alkenyl, or (1-4C)alkoxy(1-4C)alkyl; or a pharmaceutically acceptable salt thereof.

19. (new) A compound according to Claim 18 wherein R² represents (1-6C)alkyl, (1-6C)fluoroalkyl or (2-6C)alkenyl.

20. (new) A compound as claimed in Claim 19, wherein R² represents methyl, ethyl, propyl, 2-propyl, butyl, 2-methylpropyl, trifluoromethyl, 2,2,2-trifluoroethyl, chloromethyl, ethenyl, prop-2-enyl or methoxyethyl.

21. (new) A compound as claimed in Claim 20, wherein R² represents ethyl or 2-propyl.

22. (new) A compound as claimed in Claim 21, wherein R² represents 2-propyl.

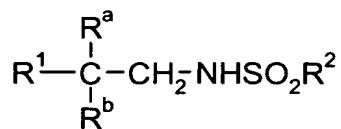
23. (new) A compound as claimed in claim 21, wherein R¹ represents 2-naphthyl.

24. (new) A compound according to claim 18 wherein R^a and R^b together represent =O;

25. (new) A compound according to claim 18 wherein R^a and R^b together represent =CH₂;

26. (new) A pharmaceutical composition, which comprises a compound as claimed in Claim 18 and a pharmaceutically acceptable diluent or carrier.

27. (new) A method of potentiating glutamate receptor function in a mammal requiring such treatment, which comprises administering an effective amount of a compound of formula:



wherein:

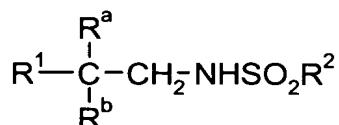
R^a and R^b together represent =O or =CH₂;

R¹ represents a naphthyl which is unsubstituted or substituted by one or two substituents selected independently from halogen; nitro; cyano; hydroxyimino; (1-10C)alkyl; (2-10C)alkenyl; (2-10C)alkynyl; (3-8C)cycloalkyl; hydroxy(3-8C)cycloalkyl; oxo(3-8C)cycloalkyl; halo(1-10C)alkyl; (CH₂)_yX¹R⁹ in which y is 0 or an integer of from 1 to 4, X¹ represents O, S, NR¹⁰, CO, COO, OCO, CONR¹¹, NR¹²CO, NR¹²COCOO or OCONR¹³, R⁹ represents hydrogen, (1-10C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, pyrrolidinyl, tetrahydrofuryl, morpholino or (3-8C)cycloalkyl and R¹⁰, R¹¹, R¹² and R¹³ each independently represents hydrogen or (1-10C)alkyl, or R⁹ and R¹⁰, R¹¹, R¹² or R¹³ together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; N-(1-4C)alkylpiperazinyl; N-phenyl(1-4C)alkylpiperazinyl; thienyl; furyl; oxazolyl; isoxazolyl; pyrazolyl; imidazolyl; thiazolyl; pyridyl; pyridazinyl; pyrimidinyl; dihydrothienyl; dihydrofuryl; dihydrothiopyranyl; dihydropyranyl; dihydrothiazolyl; (1-4C)alkoxycarbonyldihydrothiazolyl; (1-4C)alkoxycarbonyldimethyldihydrothiazolyl; tetrahydro-thienyl; tetrahydrofuryl; tetrahydrothiopyranyl; tetrahydropyranyl; indolyl; benzofuryl; benzothienyl; benzimidazolyl; and a group of formula R¹⁴-(L^a)_n-X²-(L^b)_m in which X² represents a bond, O, NH, S, SO, SO₂, CO, CH(OH), CONH, NHCO, NHCONH, NHCOO, COCONH, OCH₂CONH or CH=CH, L^a and L^b each represent (1-4C)alkylene, one of n and m is 0 or 1 and the other is 0, and R¹⁴ represents a phenyl or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, nitro, cyano, hydroxyimino, (1-10C) alkyl, (2-10C)alkenyl, (2-10C)alkynyl, (3-8C)-cycloalkyl, 4-(1,1-dioxotetrahydro-1,2-thiazinyl), halo(1-10C)alkyl, cyano(2-10C)alkenyl, phenyl, and

$(CH_2)_zX^3R^{15}$ in which z is 0 or an integer of from 1 to 4, X^3 represents O, S, NR^{16} , CO, $CH(OH)$, COO , OCO , $CONR^{17}$, $NR^{18}CO$, $NHSO_2$, $NHSO_2NR^{17}$, $NHCONH$, $OCONR^{19}$ or $NR^{19}COO$, R^{15} represents hydrogen, (1-10C)alkyl, phenyl(1-4C)alkyl, (1-10C)haloalkyl, (1-4C)alkoxycarbonyl(1-4C)alkyl, (1-4C)alkylsulfonylamino(1-4C)alkyl, (N-(1-4C)alkoxycarbonyl)(1-4C)alkylsulfonylamino-(1-4C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, (3-8C)-cycloalkyl, camphoryl or an aromatic or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, (1-4C)alkyl, halo(1-4C)alkyl, di(1-4C)alkylamino and (1-4C)alkoxy and R^{16} , R^{17} , R^{18} and R^{19} each independently represents hydrogen or (1-10C)alkyl, or R^{15} and R^{16} , R^{17} , R^{18} or R^{19} together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; and

R^2 represents (1-6C)alkyl, (1-6C)fluoro-alkyl, (1-6C)chloroalkyl, (2-6C)alkenyl, or (1-4C)alkoxy(1-4C)alkyl; or a pharmaceutically acceptable salt thereof.

28. (new) A method of treating a cognitive disorder; a neuro-degenerative disorder; age-related dementia; age-induced memory impairment; movement disorder; reversal of a drug-induced state; depression; attention deficit disorder; attention deficit hyperactivity disorder; psychosis; cognitive deficits associated with psychosis; or drug-induced psychosis in a patient, which comprises administering to a patient in need thereof an effective amount of a compound of formula:



wherein:

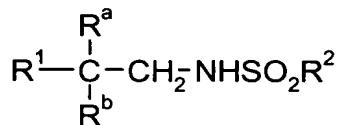
R^a and R^b together represent =O or =CH₂;

R¹ represents a naphthyl which is unsubstituted or substituted by one or two substituents selected independently from halogen; nitro; cyano; hydroxyimino; (1-10C)alkyl; (2-10C)alkenyl; (2-10C)alkynyl; (3-8C)cycloalkyl; hydroxy(3-8C)cycloalkyl; oxo(3-8C)cycloalkyl; halo(1-10C)alkyl; (CH₂)_yX¹R⁹ in which y is 0 or an integer of from 1 to 4, X¹ represents O, S, NR¹⁰, CO, COO, OCO, CONR¹¹, NR¹²CO, NR¹²COOC or OCONR¹³, R⁹ represents hydrogen, (1-10C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, pyrrolidinyl, tetrahydrofuryl, morpholino or (3-8C)cycloalkyl and R¹⁰, R¹¹, R¹² and R¹³ each independently represents hydrogen or (1-10C)alkyl, or R⁹ and R¹⁰, R¹¹, R¹² or R¹³ together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; N-(1-4C)alkylpiperazinyl; N-phenyl(1-4C)alkylpiperazinyl; thienyl; furyl; oxazolyl; isoxazolyl; pyrazolyl; imidazolyl; thiazolyl; pyridyl; pyridazinyl; pyrimidinyl; dihydrothienyl; dihydrofuryl; dihydrothiopyranyl; dihydropyran; dihydrothiazolyl; (1-4C)alkoxycarbonyldihydrothiazolyl; (1-4C)alkoxycarbonyldimethyldihydrothiazolyl; tetrahydro-thienyl; tetrahydrofuryl; tetrahydrothiopyranyl; tetrahydropyran; indolyl; benzofuryl; benzothienyl; benzimidazolyl; and a group of formula R¹⁴-(L^a)_n-X²-(L^b)_m in which X² represents a bond, O, NH, S, SO, SO₂, CO, CH(OH), CONH, NHCO, NHCONH, NHCOO, COCONH, OCH₂CONH or CH=CH, L^a and L^b each represent (1-4C)alkylene, one of n and m is 0 or 1 and the other is 0, and R¹⁴ represents a phenyl or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, nitro, cyano, hydroxyimino, (1-10C) alkyl, (2-10C) alkenyl, (2-10C)alkynyl, (3-8C)-cycloalkyl, 4-(1,1-dioxotetrahydro-1,2-thiazinyl), halo(1-10C)alkyl, cyano(2-10C)alkenyl, phenyl, and (CH₂)_zX³R¹⁵ in which z is 0 or an integer of from 1 to 4, X³ represents O, S, NR¹⁶, CO, CH(OH), COO, OCO, CONR¹⁷, NR¹⁸CO,

NHSO₂, NHSO₂NR¹⁷, NHCONH, OCONR¹⁹ or NR¹⁹COO, R¹⁵ represents hydrogen, (1-10C)alkyl, phenyl(1-4C)alkyl, (1-10C)haloalkyl, (1-4C)alkoxycarbonyl(1-4C)alkyl, (1-4C)alkylsulfonylamino(1-4C)alkyl, (N-(1-4C)alkoxycarbonyl)(1-4C)alkylsulfonylamino-(1-4C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, (3-8C)-cycloalkyl, camphoryl or an aromatic or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, (1-4C)alkyl, halo(1-4C)alkyl, di(1-4C)alkylamino and (1-4C)alkoxy and R¹⁶, R¹⁷, R¹⁸ and R¹⁹ each independently represents hydrogen or (1-10C)alkyl, or R¹⁵ and R¹⁶, R¹⁷, R¹⁸ or R¹⁹ together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; and

R² represents (1-6C)alkyl, (1-6C)fluoro-alkyl, (1-6C)chloroalkyl, (2-6C)alkenyl, or (1-4C)alkoxy(1-4C)alkyl; or a pharmaceutically acceptable salt thereof.

29. (new) A method for improving memory or learning ability in a patient, which comprises administering to a patient in need thereof an effective amount of a compound of formula:



wherein:

R^a and R^b together represent =O or =CH₂;

R¹ represents a naphthyl which is unsubstituted or substituted by one or two substituents selected independently from halogen; nitro; cyano; hydroxyimino; (1-10C)alkyl; (2-10C)alkenyl; (2-10C)alkynyl; (3-8C)cycloalkyl; hydroxy(3-8C)cycloalkyl; oxo(3-8C)cycloalkyl; halo(1-10C)alkyl; (CH₂)_yX¹R⁹ in which y is 0 or an integer of from 1 to 4, X¹

represents O, S, NR¹⁰, CO, COO, OCO, CONR¹¹, NR¹²CO, NR¹²COCOO or OCONR¹³, R⁹ represents hydrogen, (1-10C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, pyrrolidinyl, tetrahydrofuryl, morpholino or (3-8C)cycloalkyl and R¹⁰, R¹¹, R¹² and R¹³ each independently represents hydrogen or (1-10C)alkyl, or R⁹ and R¹⁰, R¹¹, R¹² or R¹³ together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; N-(1-4C)alkylpiperazinyl; N-phenyl(1-4C)alkylpiperazinyl; thienyl; furyl; oxazolyl; isoxazolyl; pyrazolyl; imidazolyl; thiazolyl; pyridyl; pyridazinyl; pyrimidinyl; dihydrothienyl; dihydrofuryl; dihydrothiopyranyl; dihydropyrananyl; dihydrothiazolyl; (1-4C)alkoxycarbonyldihydrothiazolyl; (1-4C)alkoxycarbonyldimethyldihydrothiazolyl; tetrahydro-thienyl; tetrahydrofuryl; tetrahydrothiopyranyl; tetrahydropyrananyl; indolyl; benzofuryl; benzothienyl; benzimidazolyl; and a group of formula R¹⁴-(L^a)_n-X²-(L^b)_m in which X² represents a bond, O, NH, S, SO, SO₂, CO, CH(OH), CONH, NHCO, NHCONH, NHCOO, COCONH, OCH₂CONH or CH=CH, L^a and L^b each represent (1-4C)alkylene, one of n and m is 0 or 1 and the other is 0, and R¹⁴ represents a phenyl or heteroaromatic group which is unsubstituted or substituted by one or two of halogen, nitro, cyano, hydroxyimino, (1-10C) alkyl, (2-10C)alkenyl, (2-10C)alkynyl, (3-8C)-cycloalkyl, 4-(1,1-dioxotetrahydro-1,2-thiazinyl), halo(1-10C)alkyl, cyano(2-10C)alkenyl, phenyl, and (CH₂)_zX³R¹⁵ in which z is 0 or an integer of from 1 to 4, X³ represents O, S, NR¹⁶, CO, CH(OH), COO, OCO, CONR¹⁷, NR¹⁸CO, NHSO₂, NHSO₂NR¹⁷, NHCONH, OCONR¹⁹ or NR¹⁹COO, R¹⁵ represents hydrogen, (1-10C)alkyl, phenyl(1-4C)alkyl, (1-10C)haloalkyl, (1-4C)alkoxycarbonyl(1-4C)alkyl, (1-4C)alkylsulfonylamino(1-4C)alkyl, (N-(1-4C)alkoxycarbonyl)(1-4C)alkylsulfonylamino-(1-4C)alkyl, (3-10C)alkenyl, (3-10C)alkynyl, (3-8C)-cycloalkyl, camphoryl or an aromatic or heteroaromatic group which is

unsubstituted or substituted by one or two of halogen, (1-4C)alkyl, halo(1-4C)alkyl, di(1-4C)alkylamino and (1-4C)alkoxy and R¹⁶, R¹⁷, R¹⁸ and R¹⁹ each independently represents hydrogen or (1-10C)alkyl, or R¹⁵ and R¹⁶, R¹⁷, R¹⁸ or R¹⁹ together with the nitrogen atom to which they are attached form an azetidinyl, pyrrolidinyl, piperidinyl or morpholino group; and

R² represents (1-6C)alkyl, (1-6C)fluoro-alkyl, (1-6C)chloroalkyl, (2-6C)alkenyl, or (1-4C)alkoxy(1-4C)alkyl; or a pharmaceutically acceptable salt thereof.